C3

advancing the plurality of antennas from the trocar lumen in a lateral direction relative to a longitudinal axis of the trocar into the selected tissue mass;

delivering 5 to 200 watts of electromagnetic energy from the electromagnetic energy source to the plurality of antennas without impeding out an antenna of the plurality of antennas; [and]

detecting impedance; and

creating the volumetric ablation in the selected tissue mass.

REMARKS

Rejections under 35 U.S.C. §112

Claims 1-26 are rejected under 35 U.S.C. §112, second paragraph, as indefinite. The Examiner states that claim 1 is unclear, and that the claims should either positively recite the energy source in claim 1, or amend claim 1 and dependent claims so as to not positively recite limitations of the energy source. The Examiner also states that claim 26 lacks proper antecedent basis for "the cooling medium", particularly in its dependency from claim 24 which fails to recite a cooling medium. Office action mailed 1/12/99, page 2:2 - 3:2. Applicant has amended claim 26 to depend from claim 25.

Rejections under 35 U.S.C. §102(e)

Claims 1-5, 9-12, 15-19, 22-22, 27-30 and 32-42 stand rejected under 35 U.S.C. §102(e) as anticipated by, or in the alternative, under 35 U.S.C. §103 as obvious over LeVeen, et al. Specifically, the Examiner states that while the only feature of the invention not expressly taught by LeVeen, et al. is the energy delivery surface size, the examiner maintains that the LeVeen, et al. device discloses all the features set forth in the claims and would obviously, if not inherently, provide the same function of not impeding out an antenna when used within the suggested power range. Office action mailed 1/12/99, page 3:3-4:1.

Rejections under 35 U.S.C. §103(a)

Claims 6-8, 31 and 44 stand rejected under 35 U.S.C. § 103(a) as obvious over LeVeen, et al. The Examiner has maintained that the use of any well known trocar size

would have been an obvious design consideration dependent upon the particular procedure as well as the particular antenna device being used.

Claims 20 and 24-26 are rejected under 35 U.S.C. §103(a) as obvious over LeVeen, et al. in view of Edwards, et al. The Examiner states that to have provided the LeVeen, et al. device with a sensor to control the output of energy to the antennas as taught by Edwards would have been an obvious design consideration by one of ordinary skill in the art. Office action mailed 1/12/99, page 4:3-6:2.

Allowable Subject Matter

Applicants thank the Examiner for his indication that claims 13 and 14 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph.

These grounds of rejection are respectively traversed. The present invention, as embodied in amended claim 1, is an ablation treatment apparatus that includes a trocar. The trocar has a tissue piercing distal end and a hollow lumen that extends along a longitudinal axis of the trocar. A multiple antenna ablation device is configured to be coupled to an electromagnetic energy source. The multiple antenna ablation device includes three or more antennas positionable in the lumen and deployable from the trocar lumen in a lateral direction relative to the longitudinal axis at a selected tissue mass. Each of a deployed antenna has an electromagnetic energy delivery surface size sufficient to create a volumetric ablation, between the deployed antennas, without impeding out a deployed antenna when 5 to 200 watts of electromagnetic energy is delivered from the electromagnetic energy source to the multiple antenna ablation device. An impedance monitor device is coupled to the multiple antenna ablation device. At least one cable couples the multiple antenna ablation device to the electromagnetic energy source.

Leveen, et al., discloses a multiple electrode apparatus. An obturator/stylet assembly that is introduced through the skin so that a distal end of the sheath lies at or within a target site. (Fig. 10) The obturator/stylet is then withdrawn from the sheath which leaves an access lumen to the target site. (Fig. 11) A delivery probe is then introduced through the access lumen of the sheath so that a distal end of an outer cannula of the probe is near the distal end of the sheath. (Fig. 12) Electrodes are then advanced from the distal end of the probe by

advancing a cable in the direction of the cable illustrated in Fig. 13. The cable is connected to an RF power supply. (Fig. 14) Leveen, et al., fails to teach or suggest the inclusion of an impedance monitor device or that the deployed electrodes have a cumulative energy delivery surface of sufficient size so as to not impede out when 5-200 watts of energy is delivery to the deployed electrodes.

CONCLUSION

It is submitted that the present application is now in form for allowance, and such action is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 23-2415 (Docket No. 13724-787). A duplicate copy of this paper is enclosed.

Respectfully submitted,

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